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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,987	03/24/2004	Katsuyoshi Hiraki	1117.70175	4463

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EXAMINER	
CHOW, YUK	

ART UNIT	PAPER NUMBER
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,987	HIRAKI ET AL.	
	Examiner	Art Unit	
	Yuk C. Chow	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 24 March 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 03/24/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 7A, 7B, 8, 9, 10A, 10B, 10C and 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims **1-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US Pub. No.: US2002/0140652) in view of Pan et al. (US Patent 7,164,284).

As to claim **1**, Suzuki discloses a liquid crystal display device configured to compare inputted image data (Fig. 10(nFi)) and image data of a preceding frame (Fig. 10((n-1)Fp)) and subject the inputted image data to data correction for improving

response speed (Fig. 12) of liquid crystal based on a result of the comparison (see Abstract), comprising a data driver (Fig 1(12)).

However, Suzuki does not teaches at least one of an output corresponding to a maximum tone and an output corresponding to a minimum tone in said data driver is used for only the image data that has undergone the data correction.

Pan discloses a dynamic driving method for LCD wherein the dynamic driving curves (Fig. 2A, 2B) describes the nonlinear relationship between the input digital-counts (0-255) and the output luminance of a LCD. The pattern in every curve is monotonically increasing, and the curves with higher starting luminance, the system determines the driving value on these curves that make the targeted value, and the driving value is overdriving value (Col. 3 line 48- Col. Line 65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the overdrive technique of Pan's into Suzuki's control circuit for LCD, as discovered by Pan, the dynamic gamma reveals the fundamental limitation to overdrive, and also provide a straightforward technique for quantifying the effectiveness of an overdrive technique for a LCD (Col. 2 lines 41-67). Ultimately, this improves the luminance response time.

As to claim **2**, Pan discloses a liquid crystal display device according to claim 1, wherein the output corresponding to the maximum tone and the output corresponding to the minimum tone (Fig. 2A (critical points) are used only for the image data that has undergone the data correction (Col. 3 line 65-Col. 4 line 65).

As to claim **3**, Suzuki discloses a liquid crystal display device according to claim 1, wherein tones that said data driver is capable of outputting (Fig. 15c(9)) from all outputs are displayed by arbitrarily combining all the outputs of said data driver except the output corresponding to the tone used only for the image data that has undergone the data correction [0084].

As to claim **4**, Suzuki discloses a liquid crystal display device according to claim 3, further comprising a table (Fig. 4) in which the tones that said data driver is capable of outputting are shown so as to be related to the combinations of the outputs of said data driver except the output corresponding to the tone used only for the image data that has undergone the data correction [0045-0048].

As to claim **5**, Suzuki discloses a liquid crystal display device according to claim 3, wherein an error diffusion method (Fig. 14B) is applied to the combinations of the outputs of said data driver except the output corresponding to the tone used only for the image data that has undertone the data correction [0095].

As to claim **6**, Suzuki discloses a liquid crystal display device according to claim 1, wherein said data driver is capable of outputting, in addition to outputs corresponding to all tones designatable by the image data, at least one of an output corresponding to a higher luminance than a luminance of the maximum tone (Fig. 16A(E1)) and an output corresponding to a lower luminance (Fig. 16A(E2)) than a luminance of the minimum tone [0091-0094].

As to claim **7**, Pan discloses a liquid crystal display device according to claim 6, wherein as at least one of the output corresponding to the higher luminance than the

luminance of the maximum tone and the output corresponding to the lower luminance than the luminance of the minimum tone, a plurality of outputs (Fig. 7A, 7B, 8A, 8B) corresponding to luminances different from each other are allowed to be outputted (Col. 6 lines 1-36).

As to claim **8**, Suzuki discloses a data driver being capable of outputting, in addition to outputs corresponding to all tones designatable by inputted image data, at least one of an output corresponding to a higher luminance than a luminance of a maximum tone (Fig. 16A(E1)) and an output corresponding to a lower luminance than a luminance of a minimum tone (Fig. 16A(E2) also see [0091-0094]).

As to claim **9**, Suzuki teaches a liquid crystal display device configured to compare inputted image data (Fig. 10(nFi)) and image data of a preceding frame (Fig. 10((n-1)Fp) and subject the inputted image data to data correction for improving response speed (Fig. 12) of liquid crystal based on a result of the comparison, comprising a processing part (Fig 1(12)) configured to process the image data to increase a luminance level, wherein in said processing part, processing of the image data that has undergone the data correction is prohibited (Fig 4, 5 (diagonal "-" in the tables), also see [0045-0050]).

As to claim **10**, Suzuki disclose a liquid crystal display device configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, comprising a backlight that is impulse-driven

(Fig.12), wherein a correction amount in the data correction is changed by a unit of at least one horizontal line or more [0080].

As to claim **11**, Suzuki discloses a liquid crystal display device, configured to compare inputted image data and image data of a preceding frame and subject the inputted image data to data correction for improving response speed of liquid crystal based on a result of the comparison, a correction amount in the data correction being changed according to a temperature, comprising a temperature measuring part (Fig. 1(24)), wherein a temperature measured in said temperature measuring part is corrected by a temperature correction amount that varies with time, during a period from a power supply time to a temperature stable time [0096,0097].

Regarding claims **12-14**, limitations within these claims are identical to claims 1-3, except they are the method claims. Therefore, same rejections apply to these claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuk C. Chow whose telephone number is 571 270-1544. The examiner can normally be reached on 8-6 M-TH E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571 270-1550. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

yc

AMARE MENGISTU
SUPERVISORY PATENT EXAMINER